

# **SENSITIVE AREAS: PART FOUR - BACKGROUND INFORMATION**

## **INTRODUCTION**

The background information contained in this section is a mixture of references to readily available documents, knowledgeable contacts, and data not readily available elsewhere.

## **LAND MANAGEMENT MAPS**

The Alaska Department of Natural Resources, under agreement with the Alaska Department of Environmental Conservation, produced digital base and land management maps for each of the subareas using their ARC-INFO based Geographic Information System. The following land management maps provide an index to the Public Land Record and should not be viewed as legal documents. These maps are available on the internet at: <http://www.asgdc.state.ak.us/maps/cplans/subareas.html>

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<http://www.asgdc.state.ak.us/maps/cplans/base/cover1n3.pdf>

Insert 1 of 6 land management designation maps here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEmap1of6.pdf>

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<http://www.asgdc.state.ak.us/maps/cplans/se/SEmap2of6.pdf>

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## A. LAND MANAGEMENT DESIGNATIONS

### 1. Access to Lands

Land ownership must be determined and landowners contacted to evaluate incident-specific protection priorities, obtain land-use permitting requirements, and obtain permission to access lands. Native corporation lands, as well as local, State, and Federal government lands often require special use permits. If an incident affects private lands or Native Allotments, permission to enter lands should be sought from the landowner. The local Borough government is often the best source of private land ownership records.

### 2. State

Legislatively designated State Parks and State Marine Parks are identified in Part Four, Recreational Sites and Facilities.

The Alaska State Legislature has classified certain areas as being essential to wildlife and fisheries resources (see below). These areas are designated as either a game refuge, critical habitat area or game sanctuary. Management of these areas is the joint responsibility of the Departments of Fish and Game and Natural Resources. Legislation pertaining to these lands may be found in Alaska Statutes Title 16, Chapter 20. Legal descriptions of area boundaries can be found in Alaska Department of Fish and Game's publication, *State of Alaska Game Refuges, Critical Habitat Areas and Game Sanctuaries*.

Yakataga State Game Refuge was established in 1976 to protect spring and fall resting and feeding habitat for migrating waterfowl and shorebirds. The refuge is best known for Canada geese, ducks and bald eagles. Over 178 species of birds have been seen in the refuge, with the largest number present in April and May. The area is also used for wildlife viewing, hunting, fishing and boating. . For further information regarding the Refuge, please see the Yakataga State Game Refuge Management Plan (ADF&G 1999a).

Chilkat River State Critical Habitat Area was established in 1972 to protect the up to 3,500 bald eagles that gather to feed on late-run chum salmon. The greatest eagle concentrations occur during mid to late November. The area also provides winter moose habitat. Wildlife viewing is popular.

Mendenhall Wetlands State Game Refuge was established in 1976 to protect natural habitat and game populations, especially waterfowl. For further information regarding the Refuge, please see the Mendenhall Wetlands State Game Refuge Management Plan (ADF&G 1990).

Dude Creek State Critical Habitat Area was established in 1988 to protect the wet meadow habitat which is a key resting area for lesser sandhill cranes during their spring and fall migrations. Local residents use the area for recreation.

Stan Price State Game Sanctuary was established in 1990 to provide permanent protection for brown bears, other fish and wildlife populations, and the scientific, aesthetic and educational values of the area.

### **3. Federal**

See Part Four, Recreational Sites and Facilities, for National Parks and National Forests information.

Alaska Maritime National Wildlife Refuge contact: Refuge Manager, Homer, 907/235-6546. The Refuge includes several islands in Southeast:

Petrel Island  
Forrester Island  
Lowrie Island  
Wolf Rock  
Hazy Islands  
St. Lazaria Island

## **B. HABITAT TYPES**

Shoreline habitats have been defined and ranked according to Environmental Sensitivity Index (ESI) standards produced by the National Oceanic and Atmospheric Administration (NOAA) in *Environmental Sensitivity Index Guidelines* (October 1997). Seasonal ESI maps in poster and atlas formats have been produced for the subarea, as shown on the following index map. These maps are available on the internet at: <http://www.asgdc.state.ak.us/maps/cplans/subareas.html>. Updated ESI information can be found on the internet at: <http://response.restoration.noaa.gov/order/esiindex.html>

### **1. Benthic Habitats**

Benthic (near bottom) habitats have lower vulnerability to oil than the intertidal zone, but contamination by floating slicks (dissolved and particulate fractions) is likely at depths less than 100 feet if oil remains in the area for several days. Areas continually exposed to floating oil (e.g. harbors) show accumulation of hydrocarbon fractions (PAHs) in sediments and biota at 100 feet depth. Kelp beds are susceptible to floating oil because the fronds of bull kelp reach near or to the surface, depending on tide stage. Eelgrass beds are also subject to oil exposure because of their proximity to surface spilled oil at low tide (a few feet) and their extension into the intertidal zone. Benthic submerged aquatic vegetation in or near intertidal zones is at risk by oil slicks.

### **2. Shoreline Habitats**

Habitats (estuarine, large lacustrine and riverine) ranked by ESI standards from least (#1) to most (#10) sensitive (see the following table) are described below:

ESI #1--Exposed impermeable vertical substrates: exposure to high wave energy or tidal currents on a regular basis, strong wave-reflection patterns common, substrate is impermeable with no potential for subsurface penetration, slope of intertidal zone is 30 degrees or greater, attached organisms are hardy and accustomed to high hydraulic impacts.

ESI #2--Exposed impermeable substrates, non-vertical: exposure to high wave energy or tidal currents on a regular basis, strong wave-reflection patterns regular, substrate is impermeable with no potential for subsurface penetration over most of intertidal zone, slope of intertidal zone is less than 30 degrees, there can be accumulated but mobile sediments at the base of cliff, attached organisms are hardy and accustomed to high hydraulic impacts.

ESI #3--Semi-permeable substrate: substrate is semi-permeable with oil penetration less than 10 cm, sediments are sorted and compacted, slope is less than 5 degrees, sediment and potential for rapid burial mobility is low, surface sediments are subject to regular reworking by waves, there are relatively low densities of infauna.

ESI #4--Medium permeability substrate: permeable with oil penetration up to 25 cm, slope from 5 to 15 degrees, rate of sediment mobility is high with accumulation of up to 20 cm of sediments in a single tidal cycle, sediments are soft with low trafficability, low densities of infauna.

ESI #5--Medium to high permeability substrate: substrate of medium to high permeability which allows oil penetration up to 50 cm, spatial variations in distribution of grain sizes with finer ones at high tide line and coarser ones in the storm berm and at toe of beach, 20 percent is gravel, slope between 8 and 15 degrees, sediment mobility is high during storms, sediments are soft with low trafficability, low populations infauna and epifauna except at lowest intertidal levels.

ESI #6--High permeability substrates: substrate is highly permeable with oil penetration up to 100 cm, slope is 10 to 20 degrees, rapid burial and erosion of shallow oil can occur during storms, high annual variability in degree of exposure and frequency of wave mobilization, sediments have lowest trafficability of all beaches, natural replenishment rate is the lowest of all beaches, low populations of infauna and epifauna except at lowest intertidal levels.

ESI #7--Exposed flat permeable substrate: flat (less than 3 degrees) accumulations of sediment, highly permeable substrate dominated by sand, sediments are well saturated so oil penetration is limited, exposure to wave or tidal-current energy is evidenced in ripples or scour marks or sand ridges, width can vary from a few meters to one kilometer, sediments are soft with low trafficability, high infaunal densities.

ESI #8--Sheltered impermeable substrate: sheltered from wave energy and strong tidal currents, substrate of bedrock or rocky rubble, variable in oil permeability, slope greater than 15 degrees with a narrow intertidal zone, high coverage of attached algae and organisms.

ESI #9--Sheltered flat semi-permeable substrate: sheltered from wave energy and strong tidal currents, substrate is flat (less than 3 degrees) and dominated by mud, sediments are water-saturated so permeability is low, width varies from a few meters to one kilometer, sediments are soft with low trafficability, infaunal densities are high.

ESI #10--Vegetated wetlands: marshes and swamps with various types of emergent herbaceous grasses and woody vegetation over flat mud to sand substrate--highly organic mud is common.

**ShoreZone Mapping.** An on-going coastal habitat mapping effort is producing an on-line database, digital maps, and color aerial imagery and videos of the coastline in the subarea. This geo-referenced data set collected at low tide includes coastal geomorphology and biological

habitat for some intertidal and shallow subtidal areas. ESI types are cross-referenced. The information may be accessed at:

<http://www.CoastAlaska.net>

**Eelgrass beds.** Eelgrass beds are habitat of special concern. Eelgrass beds provide important habitat for fish and are susceptible to disturbance. An index and map of selected eelgrass beds inventoried for scientific study by the National Marine Fisheries Service follows.

### **3. Upland Habitats**

At this time, no uplands or wetlands classifications directly related to sensitivity to oil spills has been identified. A general wetlands classification has been developed by the U.S. Fish and Wildlife Service, National Wetlands Inventory, in Anchorage. Considerable mapping of wetlands has been completed, some of which are available in a Geographic Information System database (see the following figure). Updated map data is being placed on the National Wetlands Inventory Internet web site at: <http://wetlands.fws.gov/>

Regional Wetlands Coordinator  
National Wetlands Inventory  
Anchorage Alaska  
786-3471

### ESI HABITAT RANKING

ESI NO.	ESTUARINE (marine)	LACUSTRINE (lake)	RIVERINE (large rivers)
1 A	Exposed rocky cliffs	Exposed rocky cliffs	Exposed rocky banks
1 B	Exposed sea walls	Exposed sea walls	Exposed sea walls
2	Exposed wave-cut platforms	Shelving bedrock shores	Rocky shoals; bedrock ledges
3	Fine- to medium-grained sand beaches	Eroding scarps in unconsolidated sediments	Exposed, eroding banks in unconsolidated sediments
4	Coarse-grained sand beaches	Sand beaches	Sandy bars and gently sloping banks
5	Mixed sand and gravel beaches	Mixed sand and gravel beaches	Mixed sand and gravel bars and gently sloping banks
6 A	Gravel beaches	Gravel beaches	Gravel bars and gently sloping banks
6 B	Riprap	Riprap	Riprap
7	Exposed tidal flats	Exposed flats	Not present
8 A	Sheltered rocky shores	Sheltered scarps in bedrock	Vegetated, steeply sloping bluffs
8 B	Sheltered sea walls	Sheltered sea walls	Sheltered sea walls
9	Sheltered tidal flats	Sheltered vegetated low banks	Vegetated low banks
10 A	Saltwater marshes		
10 B	Freshwater marshes	Freshwater marshes	Freshwater marshes
10 C	Freshwater swamps	Freshwater swamps	Freshwater swamps

“Environmental Sensitivity Index Guidelines” (October 1995) NOAA Technical Memorandum NOS ORCA 92

Insert ESI index map here

[http://www.asgdc.state.ak.us/maps/cplans/se/pdfs/ESI\\_DATA/INDEX.PDF](http://www.asgdc.state.ak.us/maps/cplans/se/pdfs/ESI_DATA/INDEX.PDF)

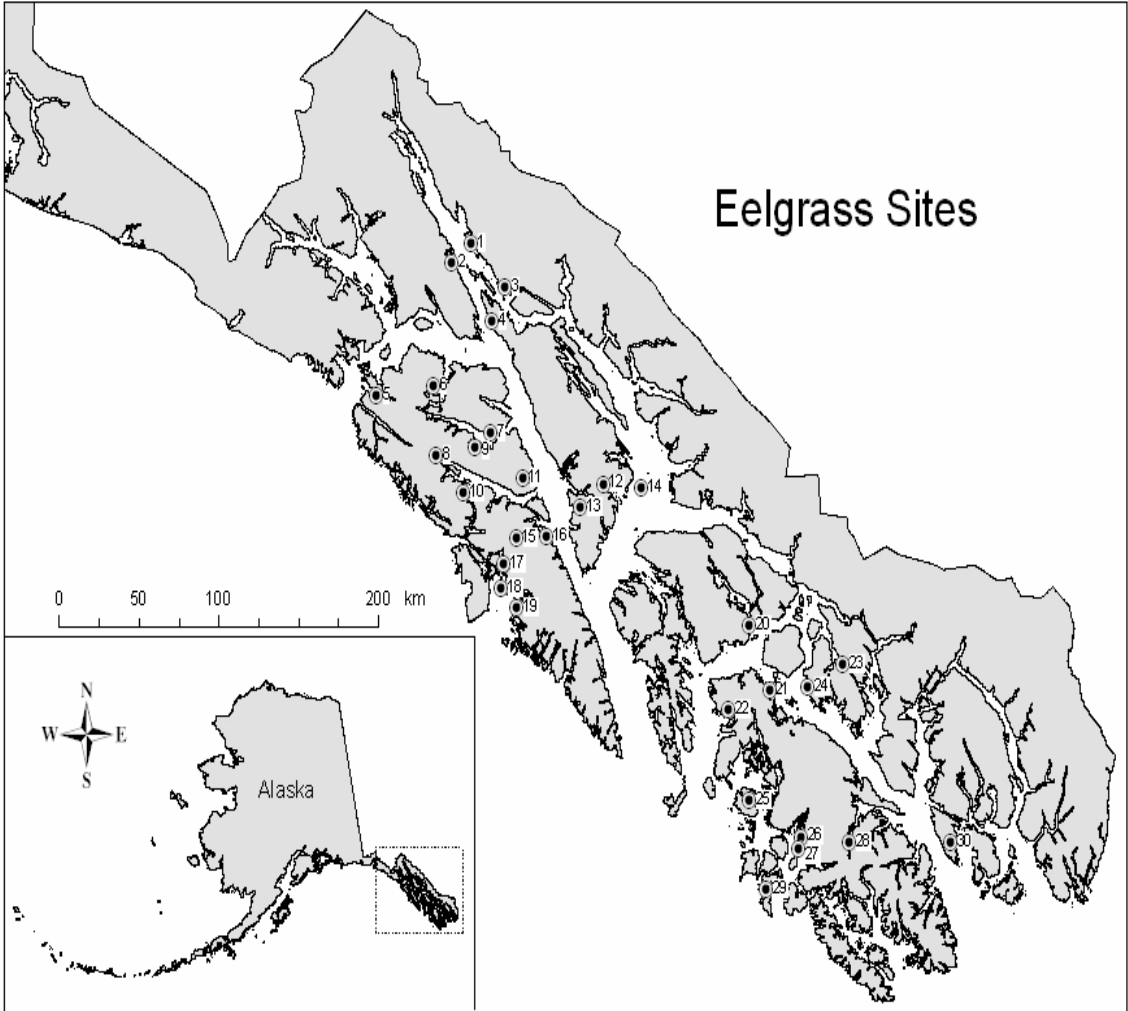
Wetland status map figure here

<http://alaska.fws.gov/fisheries/nwi/index.htm>

## Selected Eelgrass Sites

Map ID	Location	Sublocation	Latitude	Longitude
1	Juneau/mainland	Bridget Cove	58.6252	134.9386
2	Juneau/mainland	St. James Bay	58.5731	135.1825
3	Juneau/mainland	Auke Bay	58.3811	134.6924
4	Admiralty Island	Funter Bay	58.2553	134.9097
5	Chichagof Island	Port Althorp	58.1111	136.2789
6	Chichagof Island	Neka Bay	58.0664	135.6706
7	Chichagof Island	Tenakee Springs	57.7756	135.1914
8	Chichagof Island	Hoonah Sound	57.7597	135.7931
9	Chichagof Island	Crab Bay	57.7364	135.3875
10	Chichagof Island	Ushk Bay	57.5618	135.6116
11	Chichagof Island	Sitkoh Bay	57.5325	134.9761
12	Admiralty Island	Pybus Bay	57.3764	134.1836
13	Admiralty Island	Chaik Bay	57.3133	134.4728
14	Brothers Island	East	57.2928	133.8150
15	Baranof Island	St. John Baptist Bay	57.2834	135.1828
16	Baranof Island	Cosmos Cove	57.2425	134.8717
17	Baranof Island	Nakwasina, Katlian Bay	57.19115	135.3666
18	Baranof Island	Middle Island	57.09	135.4489
19	Baranof Island	Pirate's Cove, Sandy Cove	56.98125	135.3418
20	Kupreanof Island	Kah Sheets Bay	56.5183	133.0969
21	Prince of Wales Island	Exchange Cove	56.2111	133.0683
22	Prince of Wales Island	Calder Bay	56.195	133.5167
23	Etolin Island	Olive Cove/Anita Bay	56.1917	132.3033
24	Etolin Island	Steamer Bay	56.1531	132.6911
25	Heceta Island	Warm Chuck Inlet	55.7708	133.5361
26	Prince of Wales Island	Craig Area	55.52426	133.1335
27	Prince of Wales Island	Ballena Island	55.4819	133.1881
28	Prince of Wales Island	Twelve Mile Arm	55.4156	132.6881
29	Baker Island	San Antonio Bay	55.3575	133.5869
30	Ketchikan	Bostwick Inlet	55.2364	131.7500

## Selected Eelgrass Sites in Southeast Alaska



## C. BIOLOGICAL RESOURCES

### 1. Fish and Wildlife

#### (a) Threatened and Endangered Species

Federally listed threatened and endangered species are protected under the Endangered Species Act. Spill response activities which could impact a listed species should be coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.

The northern sea otter, American peregrine falcon, Aleutian Canada goose, short-tailed albatross, and Steller's eider are under the jurisdiction of the U.S. Fish and Wildlife Service. Under the Endangered Species Act, all salmon species, Steller sea lions, and endangered whale species are under the jurisdiction of the National Marine Fisheries Service.

Although the U.S. Fish and Wildlife Service determined the peregrine falcon is no longer a threatened species, monitoring of the species has continued since its 1994 delisting. The Alaskan Bald and Golden eagles, although not on the endangered species list, are fully protected (including their nests and nest trees) under the Bald Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918, as amended. Spill response activities that could affect these species must be coordinated with the U.S. Fish and Wildlife Service.

While the National Marine Fisheries Service has determined the Gray whale is no longer a threatened or endangered species, monitoring of the species by the Service has continued since the 1994 delisting. All marine mammals, whether or not they are on the endangered species list, are protected by the Marine Mammal Protection Act of 1972. Any spill response activities which could affect marine mammals must be coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.

#### **For updated information on the internet:**

U.S. Fish and Wildlife Service National Endangered Species web site:  
<http://endangered.fws.gov/> (USFWS 2003a)

Alaska Department of Fish and Game Endangered Species web site:  
<http://www.state.ak.us/local/akpages/FISH.GAME/wildlife/geninfo/game/eslist.htm> (ADF&G 2003a)

For Steller sea lion critical habitat and no-entry zones, please visit the NMFS website:  
<http://www.fakr.noaa.gov/protectedresources/stellers/habitat.htm> (NMFS 2003a).

Threatened and endangered species potentially present in the subarea are shown in the following table.

**Species Managed by the U.S. Fish and Wildlife Service**

<u>Common Name</u>	<u>Scientific Name</u>	<u>Occurrence</u>	<u>Status*</u>
Short-tailed albatross	<i>Diomedea albatrus</i>	Probable Resident	E

**Species Managed by the National Marine Fisheries Service**

Sperm whale	<i>Physeter catodon</i>	Occasional Migrant	E
Fin whale	<i>Balaenoptera physalus</i>	Occasional Migrant	E
Blue whale	<i>Balaenoptera musculus</i>	Occasional Migrant	E
Sei whale	<i>Balaenoptera borealis</i>	Occasional Migrant	E
Humpback whale	<i>Megaptera novaeangliae</i>	Seasonal	E
Northern right whale	<i>Eubalaena japonica</i>	Occasional Migrant	E
Steller sea lion	<i>Eumetopias jubatus</i>	Resident	T
Snake River Sockeye Salmon	<i>Onchorynchus nerka</i>	Occasional migrant	E
Snake River Fall Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Occasional migrant	T
Snake River Spring/Summer Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Occasional migrant	T
Puget Sound Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Occasional migrant	T
Lower Columbia River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Occasional migrant	T
Upper Willamette River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Occasional migrant	T
Upper Columbia River Spring Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Occasional migrant	E
Upper Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Occasional migrant	E
Snake River Basin Steelhead	<i>Onchorynchus mykiss</i>	Occasional migrant	T
Lower Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Occasional migrant	T
Upper Willamette River Steelhead	<i>Onchorynchus mykiss</i>	Occasional migrant	T
Middle Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Occasional migrant	T

\*(E = endangered, T = threatened)

## Steller Sea Lion Rookery & Haulout Locations

<u>Site</u>	<u>Latitude</u>	<u>Longitude</u>
Akwe River	59.282 N	139.041 W
Benjamin <sup>2</sup>	58°33.7' N	134°54.8' W
Berners Bay	58.757 n	135.017 W
Biali Rock <sup>1, 2, 4</sup>	56°42.7' N	135°20.5' W
Biorka (Kaiuchali) <sup>2, 3</sup>	56°50.0' N	135°34.0' W
Cape Addington <sup>2</sup>	55°26.3' N	133°49.3' W
Cape Bartolome	55°13.8' N	133°37.0' W
Cape Bingham	58°05.6' N	136°32.5' W
Cape Cross <sup>2</sup>	57°54.7' N	136°34.1' W
Cape Fairweather	58°47.5' N	137°56.3' W
Cape Ommaney <sup>2</sup>	56°10.5' N	134°42.3' W
Circle Point	58°07.5' N	134°04.8' W
Coronation <sup>2</sup>	55°55.7' N	134°17.0' W
Dorothy	58°14.2' N	134°03.4' W
Dry Bay	59.130 N	138.264 W
Easterly	55°53.7' N	132°05.3' W
Eldred Rock	58°58.3' N	135°13.3' W
Emmons	57°36.4' N	135°31.4' W
Etolin	56°20.2' N	132°31.9' W
False Point	57°22.0' N	133°51.6' W
Forrester Complex <sup>1</sup>	54°50.3' N	133°31.6' W
Forrester/Forrester Island	54°50.3' N	133°31.6' W
Forrester/Sea Lion Rk.	54°50.6' N	133°32.1' W
Forrester/C Horn Rk.	54°50.8' N	133°33.0' W
Forrester/Lowrie	54°51.7' N	133°32.2' W
Forrester/North Rk	54°52.4' N	133°33.7' W
Funter bay	58.217 N	134.918 W
Gran Point <sup>2</sup>	50°08'2" N	135°14'6" W
Graves Rock <sup>1, 2, 4</sup>	58°14.3' N	136°45.4' W
Grindall	55°26.4' N	132°06.5' W
Grindle Island	55°26'5" N	132°07'5" W
Harbor Point	58°36.3' N	137°38.2' W
Hazy <sup>1</sup>	55°52.0' N	134°34.0' W
Horn Cliff	56°50.7' N	132°47.2' W
Inian	58°16.3' N	136°24.0' W
Jacob Rock	56°47.3' N	135°29.8' W
Larch Bay	56°12.6' N	134°44.2' W
Ledge Point <sup>2</sup>	58°48'5" N	130°45'5" W
Ledge (Gran) Point	59°08.0' N	135°14.4' W
Little Island	58.541 N	135.042 W
Lull Point <sup>2</sup>	57°18'0" N	135°48'5" W
Met Pt. (Lynn Canal)	58°56.0' N	135°10.0' W
Mist	57°59.3' N	133°50.7' W

<u>Site</u>	<u>Latitude</u>	<u>Longitude</u>
Patterson Point	56°32.4' N	134°38.2' W
Pinta Rocks	57°05.2' N	134°00.7' W
Point Carolus	58°22.0' N	136°02.0' W
Point Lull	57°18.6' N	134°48.4' W
Point Marsden	58°03.0' N	134°48.5' W
Point Marsh	54°42.6' N	132°17.1' W
Point Rock (Point Islet)	55°09.2' N	132°38.3' W
Rocky island	58.176 N	135.034 W
Round Rock	57°15.6' N	133°56.1' W
Sail	57°21.1' N	133°43.3' W
Sakie Point	55°03.3' N	133°14.2' W
Sea Lion Island	57°17.0' N	135°53.0' W
Sea Lion Rock (Puffin Bay)	56°15.1' N	134°49.9' W
St. Lazaria Island	56°59.2' N	135°42.3' W
Sitkagi Bluffs	58.708 N	140.650 W
South Marble	58°38.7' N	136°02.8' W
Stephens Passage (Point League)	57°36.4' N	133°38.5' W
Sunset <sup>2</sup>	57°30.0' N	133°35.2' W
Sukoi Islets	56°55.0' N	132°59.0' W
Tenakee Cannery Pt.	57°46.5' N	135°04.3' W
The Brothers	57°16.3' N	133°52.4' W
The Sisters	58°10.3' N	135°15.4' W
Timbered <sup>2</sup>	55°41.8' N	133°47.7' W
Tlingit (Case) Point	58°45.2' N	136°14.9' W
Turnabout	57°07.8' N	133°58.3' W
Turnaround Island	57°08'0" N	133°59'0" W
Venisa	58°18.7' N	136°51.0' W
West Rock	54°48.8' N	131°29.7' W
White Sisters <sup>1</sup>	57°38.1' N	136°15.4' W
Wolf Rock	55°01.2' N	133°29.2' W
Yasha	56°57.8' N	134°33.5' W

1 Rookery Sites

2 Haulout with more than 200 animals counted

3 Haulout currently located at Kaiuchali Island, Dennis McAllister, Alaska Department of Fish and Game, personal communication, March 1993

4 Added as rookeries in 2002

Insert Steller Sea Lion critical habitat map here

<http://www.asgdc.state.ak.us/maps/cplans/se/pic29637b.pdf>

(b) Fin Fish, Shellfish, and Essential Fish Habitat

Dense concentrations of marine organisms are present, including five species of Pacific salmon, herring, crab, shrimp, clams, mussels and a variety of intertidal organisms. Local kelp and eelgrass beds are critical components of the marine ecosystem. The subarea is rich in biological resources. In addition to supporting a sizeable commercial fishing industry, the area is utilized by subsistence users, hunters, and sport fishermen. More information can be obtained on the Alaska Department of Fish and Game internet site at: <http://www.state.ak.us/adfg/adfghome.htm> (ADF&G 2003b).

## FINFISH

Lagoons and estuarine areas are important rearing and overwintering areas for anadromous fish. River deltas are particularly important areas for fish throughout the year. Estuaries and river deltas provide important habitat during spring and fall migration periods. Estuaries provide important summer habitat for juvenile anadromous fish, but are generally not used in winter. Shallow lakes, oxbows, and seasonally flooded wetlands connected to streams or rivers may support fish during the summer but may freeze to the bottom in winter. Deep lakes and rivers, and spring-fed stream systems serve as overwintering areas for fish in the Southeastern Alaska.

Fish species most vulnerable to an oil spill would be those with life stages that utilize nearshore tidal habitat, such as: Pacific herring, Pacific sandlance, Arctic shanny, crescent gunnel, snake prickleback, Pacific sandfish, surf smolt, walleye Pollock, Pacific cod, rock sole, yellowfin sole, starry flounder, English sole, butter sole, and copper, dusky, brown, black, and quillback rockfishes, as well as pink, chum and coho salmon.

Dolly Varden have both resident and anadromous life history forms. Anadromous fish return to freshwater spawning and overwintering areas (usually in lakes) from July through December. Dolly Varden spawn from September to October; fry emerge in April and May. Adult anadromous Dolly Varden consume small fish and invertebrates in nearshore waters. Resident and rearing populations of Dolly Varden may occur in all but the smallest streams.

Rainbow Trout occur as resident and anadromous forms (steelhead) in rivers and streams of Southeast Alaska. Rainbow trout generally spawn during May and June, and fry emerge a few weeks to four months later. Steelhead spawn between mid April to June, adults that survive spawning return to the ocean in mid-May to June, and fry emerge during mid summer rearing in freshwater two to five years before emigrating to the ocean. Many steelhead will move slowly back to the ocean where, after at least one year, they may return to freshwater to spawn again. Drainages supporting the most significant populations in Southeast Alaska include the Situk, Naha, Karta, Thorne, and Ahrnklin River. In addition to sport fisheries for steelhead, there are also directed Federal subsistence fisheries in all streams in Southeast according to conditions specified on a Federal subsistence fishing permit.

Cutthroat Trout occur as sea-run or resident (non-sea run) forms in streams and lakes in Southeast Alaska and are the most common trout species in the region. They spawn March to early June. Many occur in streams, lakes, bogs, ponds and at sea. Sea-run trout usually overwinter in lakes, and adults and smolts migrate to ocean feeding areas and stream spawning areas in early spring. Young resident cutthroat trout rear in small streams for a couple of years before moving into

lakes where they spend the remainder of their lives. Cutthroat trout are very sensitive to environmental change and pollution.

Eulachon - In Southeast Alaska, the migration from the sea to the eulachon's spawning streams and rivers can occur as early as April. Eulachon are broadcast spawners, spawning in April or May; most die after spawning. Spawning eulachon provide a feeding feast for bears, eagles, killer whales, beluga whales, seals, sea lions, gulls, and humans. Some drainages with eulachon migrations include the Unik (Eulachon), Stikine, Taku, Mendenhall, Chilkat, Antler, and Lace rivers in Southeast; and the Situk near Yakutat. Please see MESA maps 58-63 & 65 for eulachon concentration areas (ADF&G 2001).

Chinook, coho, sockeye, pink, and chum salmon occur within the Southeast Subarea. Adult salmon are present in freshwater from mid-March through early October, depending on the species of salmon and the stream system. Salmon eggs incubate in the stream gravels over the winter; fry emerge from stream gravels from mid-March through early-June. Chinook, sockeye, and coho fry remain in fresh water from one to four years before migrating to sea. Attachment two of this document provides average salmon escapement or average peak index counts for salmon streams in the Southeast Alaska area.

Pink and Chum Salmon fisheries are important in all Southeastern coastal regions of Alaska. Pink and chum salmon are present through Southeast Alaska and forming into schools in salt water where their diet usually consists of zooplankton. Pink and Chum do not have a period of freshwater residence after emergence of the fry as do chinook, coho, and sockeye salmon.

Sockeye Salmon - In systems with lakes, juveniles usually spend one to three years in fresh water before migrating to the ocean in the spring as smolts. Sockeye salmon return to their natal stream to spawn after spending one to four years in the ocean.

Chinook Salmon is Alaska's state fish and is one of the most important sport and commercial fish native to the Pacific coast of North America. It is the largest of all Pacific salmon, with weights of individual fish commonly exceeding 30 pounds. Unlike other salmon species, chinook salmon rear in inshore marine waters and are, therefore, available to commercial and sport fishers all year. This also makes them vulnerable to inshore marine pollutants year round. Juvenile chinook in fresh water feed on plankton, then later eat insects.

Coho Salmon - Coho are extremely adaptable and occur in nearly all accessible bodies of fresh water-from large transboundary watersheds to small tributaries through out Southeast Alaska. Coho salmon enter spawning streams from July to November, usually during periods of high runoff.

Pacific Herring are critically important in the Southeastern Alaska food web as many seabirds, fish and marine mammals rely on them as prey. Wide distribution of herring occurs from 50 to 100 meter depths. In Alaska, spawning is first observed in the southeastern archipelago during mid-March, in Prince William Sound in April and May, and in the Bering Sea during May and June. Spawning is confined to shallow, vegetated areas in the intertidal and subtidal zones.

Capelin are important forage fish for higher trophic predators such as seabirds and marine mammals because of their high oil content. They spawn on sandy to small gravel beaches

throughout Southeast Alaska. Capelin typically spawn from May through July, but they are inconsistent in timing, location, and numbers from year to year.

Pacific Halibut are found throughout the Southeastern Alaska area and are important for commercial, sport, and subsistence fishing. They spawn in deep water from 180 to 460 meters from November to January. Older halibut spend winters in deep water along the continental shelf. In summer, adult halibut move to shallow coastal waters with depths from 30 to 300 meters.

Lingcod typically inhabit nearshore rocky reefs from 10 to 100 meters in depth. Lingcod is an increasingly popular recreational fish and from 1990-1999; an average of 2,259 fish were harvested in Southeastern Alaska.

Groundfish - The following species are found through out Southeast Alaska: arrowtooth flounder, flathead sole, Pacific cod, Pacific tomcod, sablefish, rock sole, sculpin, walleye pollock, kelp greenling, rock greenling, masked greenling, Atka mackerel, searcher, northern ronquil, and yellowfin sole. Cod spawn in late winter or early spring and due to their abundance, they are extremely important to the ocean's food web. Yellow fin sole juveniles stay in the nearshore area for 3 to 5 years. Yellowfin sole and starry flounder spawn in shallow subtidal areas of bays and estuaries. Prowfish and Pacific pomfret are uncommon off the Alaska coast. Most sport-caught rockfish occurs in Ketchikan and Sitka sport fisheries. Rockfish are long-lived, ovoviparous fish, which become sexually mature between 10-15 years. Juvenile pollock, greenlings, pricklebacks, and sculpins make up a significant portion of the diet of species such as salmon and marine mammals.

Groundfish managed by the North Pacific Fishery Management Council in the gulf of Alaska include: walleye Pollock, Pacific cod, sablefish, dover sole, Greenland turbot, deep-sea sole, rex sole, southern rock sole, yellowfin sole, starry flounder, butter sole, English sole, Alaska plaice, sand sole, flathead sole, arrowtooth flounder, 30 species of rockfish with emphasis on shorttraker and roughey rockfish, and Pacific Ocean perch. Also listed as important are: pelagic shelf rockfish, including northern, dusky, widow, and yellowtail rockfish; demersal shelf rockfish including canary, China, copper, quillback, rosethorn, tiger, and yelloweye rockfish: and a deepwater assemblage of shortspine thornyhead and longspine thornyhead rockfish. Atka mackerel is a groundfish that is sometimes found in Southeast Alaska.

Other Forage Fish - Numerous species of fish inhabit the nearshore area and these populations are often dominated by sand lance and rainbow smelt which might comprise 40% of the nearshore fish by number. Rainbow smelt is also an important subsistence food (up to several thousand pounds per community).

Sharks - Spiny dogfish, Pacific sleeper shark, and salmon shark are present in Southeast Alaska.

Skates- Longnose skate, big skate, Alaska skate, and Aleutian skate inhabit Southeastern Alaska.

## SHELLFISH

Larvae and adult crustaceans (including shrimp and crabs) are predominate zooplankton and are important to the diet of species ranging from forage fish to baleen whales.

Dungeness Crabs are found from the intertidal region to a depth of 230 meters in Southeast Alaska. Dungeness crabs are most common on sand or muddy-sand bottoms in the subtidal region, and are often found in or near eelgrass beds. However, they can also be found on a number of other substrata including various mixtures of silt, sand, pebble, cobble, and shell. Juvenile Dungeness crabs are found in similar habitats to adults, but they generally occupy shallower depths than adults. Juvenile crabs can be very abundant in the intertidal zone, but also occur in shallow subtidal areas. Survival of young crabs is greatest in habitats such as intertidal zones and eelgrass beds, where they can gain refuge from predators. It is widely distributed and can be found as far north as Cook Inlet and Prince William Sound and south to Magdalena Bay, Mexico. This crab supports both a commercial fishery and a personal use fishery in Alaska. Commercial Dungeness crab harvests from Southeast Alaska have averaged 2.2 million pounds per season (ADF&G 2002b).

Three species of King Crab are located in Southeast Alaska: red, blue, and brown. Red king crab larvae generally exhibit a diel movement being most abundant in the upper water column during the day and deeper at night. Young of the year crab occur at a depth of 50 meters or less. They are solitary and need high relief habitat or coarse substrate such as boulders, cobble, shell hash, and living substrates such as bryozoans and stalked ascidians. Between the ages of two and four years, there is a change in habitat needs and a tendency for the crab to form pods consisting of thousands of crabs. Podding generally continues until four years of age (about 6.5 centimeters), when the crabs move to deeper water and join adults in the spring migration to shallow water for spawning. Adult red king crabs occur to a depth of 365 meters; preferred habitat for reproduction is water less than 90 meters. Red and blue kings can occur from the intertidal zone to 180 meters or more. Golden king crabs live mostly between 180–730 meters, but can occur from 90–900 meters (ADF&G 2003c).

A near peak harvest of red king crabs occurred in the 1980/81 season, but three years later the fishery crashed, as harvests were down sixty-fold, and the four top historical producing areas were closed completely to red king crab fishing for the first time. Red king crab populations have remained depressed statewide (except in Southeast Alaska) since 1983.

Tanner Crab larvae are strong swimmers and perform diel vertical migrations in the water column (down at night). They usually stay near the depth of the chlorophyll maximum during the day. The length of time larvae take to develop is unknown, although it has been estimated at only 12 to 14 days. After settling to the bottom, Tanner crabs are widely distributed at depths up to 473 meters. Females are known to form high density mating aggregations consisting of hundreds of crabs per mound at depths less than 30 meters. The mounds likely form in the same general location each year, but the location of the mounds is largely undocumented. They form the basis of a thriving domestic fishery from Southeastern Alaska north through the Bering Sea. The peak hatching period for tanner crabs is usually between April and June (ADF&G 2003c).

Pacific Weathervane scallops are found on sand, gravel, and rock bottoms from 45-180 meters throughout Southeast Alaska. Sexually maturity occurs at age 3 or 4 and scallops are of commercially harvestable size at 6 to 8 years (ADF&G 2003c). Scallops are found in beds (areas of abundant numbers). Scallops are dioecious and they spawn in June and July where the spermatozoa and ova are released into the water. Around one month later, hatching occurs and the larvae drift with the tides and currents. After two or three weeks the larvae will have gained shell weight, settled to the bottom, and attached to seaweed (ADF&G 2003c). Scallops may live

to age 18 and they feed by filtering microscopic plankton from the water. They have been commercially harvested throughout Alaska on a sporadic basis due to overharvesting of scallop beds, more lucrative fisheries, and market conditions.

Bay scallops occur shallower than weathervane scallops (15-60 meters). They are more easily collected by divers and are frequently harvested in this manner. They are more vulnerable to oil exposure than weathervane scallops as adults.

Shrimp. Pandalid shrimp (northern pink shrimp, humpy/flexed shrimp, coonstripe shrimp, spot shrimp and sidestripe/giant red shrimp) are distributed throughout most major bays and certain nearshore and offshore areas in Southeast Alaska. Coonstripes and spot shrimp are generally associated with rock piles, coral, and debris-covered bottoms, whereas pinks, sidestripes, and humpies typically occur over muddy bottom. Pink shrimp occur over the widest depth range (18-1500 meters). Humpies and coonstripes usually inhabit shallower waters (5-370 meters) (ADF&G 2003c). Spot shrimp seem to be caught in the greatest concentrations around 110 meters, but range from 3 to 460 meters (ADF&G 2003c). Sidestripes are typically found from 45 to 640 meters, but most concentrations occur in waters deeper than 73 meters. Most shrimp migrate seasonally from deep to shallow waters. The major pot shrimp fisheries occur in Cook Inlet, Prince William Sound, and Southeast Alaska and usually total less than 500,000 pounds annually (ADF&G 2003c). Spot shrimp are the primary species caught in the waters of Southeast Alaska.

Clams Razor clams are filter feeders subsisting on plankton. They live in surf-swept and somewhat protected sand beaches of the open ocean throughout Southeast Alaska (ADF&G 2003c). They are found from approximately 1 meter above the mean low water level down to depths of 55 meters. Pacific little neck clams are commercially harvested throughout Southeast Alaska.

Blue mussels are found throughout the Southeastern Alaska and are found through the intertidal zone up to a depth of five meters densely packed around rock, wood, or other solid structure.

### **Essential Fish Habitat**

Essential fish habitat in the subarea, as identified by the National Marine Fisheries Service, can be found on their interactive mapping internet site: <http://www.fakr.noaa.gov/maps/> or <http://www.fakr.noaa.gov/habitat/efh.htm> (NMFS 2003b).

(c) Birds

### **Important Bird Habitats/Communities**

Large numbers of waterfowl, seabirds and shorebirds are present during the spring and fall migrations. The Stikine and Mendenhall river deltas and Yakutat and Bering Glacier forelands areas are particularly important staging areas. Many birds also breed in the region during the summer and a large duck population overwinters in sheltered areas. Major seabird breeding colonies are located on St. Lazaria, Forrester and Hazy Islands. Smaller colonies are also present throughout the region. Recent surveys have also been completed by the Fish and Wildlife Service for marbled and Kittlitz's murrelets and wintering water birds in Southeast.

The Alaskan Seabird Colony Catalog is an automated database that contains the distributions of breeding seabirds and the relative size of all the colonies in Alaska. The data reports indicating estimated species composition and numbers for seabird colonies of Southeast Alaska are summarized from the catalog. The maps display colony locations. The Alaska Seabird Colony Catalog is maintained by the U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Marine and Coastal Bird Project, in Anchorage at 786-3444.

### **Important Bird Species/Groups**

**COMMON BIRDS:** Many of the Southeast's birds are water birds. Some are year-round residents, and many more species pass through the area during spring and fall migration periods. Some northern breeding seaducks spend the winter in Southeast Alaska. In May, large concentrations of seabirds feed on the dense concentrations of prey fish and shorebird flocks feed on invertebrates in coastal mudflats and marshes. Nesting of the Southeast's birds occurs in a wide variety of habitats: cliffs, gravel bars in streams, peatland bogs, hollows in dead trees, rockpiles, burrows, trees and at the base of tree trunks, or marsh grasses along the edges of lakes. An Alaskan bird list may be found at:

<http://www.npwrc.usgs.gov/resource/othrdata/chekbird/r7/alaska.htm> (USGS 2003a). A Juneau bird checklist may be found at:

<http://www.npwrc.usgs.gov/resource/othrdata/chekbird/r7/juneau.htm> (USGS 2003b). A checklist for Glacier Bay National Park and Preserve is available at:

[http://www.nps.gov/glba/InDepth/learn/about/nature/animals/bird\\_list.pdf](http://www.nps.gov/glba/InDepth/learn/about/nature/animals/bird_list.pdf)

**Waterfowl-**Spring and fall concentration areas for waterfowl include the Blacksand Island and Situk River tidal flat areas, Dry Bay, Chilkat Inlet, Mendenhall Wetlands State Game Refuge, Stikine River Flats, and Burroughs Bay. Winter residents and migrants include common loon, yellow-billed loon, Pacific loon, red-throated loon, horned grebe, red-necked grebe, western grebe, and pelagic cormorant. Wintering seaducks include Barrow's and common goldeneye, harlequin duck, long-tailed duck, white-winged scoter, surf scoter, and black scoter. Large flocks of non-breeding scoters reside in coastal waters all summer. Harlequin ducks are the only seaduck that nests in Southeast Alaska. Nesting waterfowl are Vancouver Canada geese (that also winter in the subarea), mallard, and common and red-breasted merganser. Green-winged and blue-winged teal may nest in the extensive freshwater wetlands in the Yakutat area.

**Seabirds-** Common gull and gull-like birds include the glaucous-winged, mew, herring, and Thayer's and Bonaparte's gulls, black-legged kittiwake, Arctic tern and forked-tailed and Leach's storm petrel. Aleutian tern and the Caspian tern are less commonly found. Common murre, pigeon guillemot, Cassin's and rhinoceros auklets, horned and tufted puffins, and marbled and Kittlitz's murrelets are also found along the coast. Seabird colonies are listed on the MESA Maps 58-68 (ADF&G 2001) and attached links.

**Shorebirds-**Southeastern Alaska's shorelines provide a varied assortment of invertebrates for shorebirds to feed on. Shorebirds present, particularly during migration periods, include black oystercatcher; black and ruddy turnstones; dunlin; western, rock, least and pectoral sandpipers; surfbird; black-bellied and semipalmated plover; red knot; greater and lesser yellowlegs; spotted sandpiper; common snipe; and long and short-billed dowitchers. Great blue herons reach the northern limit of their breeding range in southern Southeast Alaska.

**Passerines-**The upland mosaic of Southeast Alaska habitats provide nesting, resting and feeding areas for a variety of birds. Species most closely associated with coastal areas include the rufous

hummingbird, belted kingfisher, violet-green swallow, tree swallow, common raven, northwestern crow, American dipper, winter wren, yellow warbler, Wilson's warbler, savannah sparrow, fox sparrow, Lincoln's sparrow, and song sparrow. Sandhill cranes regularly pass through the subarea during migration, using Mendenhall Wetlands Refuge, for example.

Raptors known to inhabit Southeast Alaska coastal areas include bald eagle, northern harrier, and osprey. Less common are short-eared owl, merlin, gyrfalcon and Peale's peregrine falcon. Although Alaskan bald and golden eagles are not on the endangered species list, they are fully protected (including their nests and nest trees) under the Bald Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918 as amended. Spill response activities that could affect these species should be coordinated with the U.S. Fish and Wildlife Service.

A large population of bald eagles nest along the coastal areas during spring and summer and many are year-round residents. Concentrations of bald eagles are commonly found in association with major spawning events by species including salmon, herring and eulachon. The largest eagle concentrations are found near Haines, along the Chilkat River from September through January, and along the lower Stikine River from April through early May.

Insert map of seabird colonies here

<http://www.asgdc.state.ak.us/maps/cplans/se/se35seabird.pdf>

(d) Marine Mammals

Harbor seals (see following map), Steller sea lions, sea otters, killer whales and porpoises are present throughout the year. Several species of endangered baleen whales, including large numbers of gray and humpback whales, migrate through the area and stop to feed during the spring and summer.

Harbor seals, Steller sea lions, sea otters, gray whales, finback whales, sei whales, minke whales, humpback whales, beluga whales, Cuvier's beaked whales, killer whales, Dall and harbor porpoises, and Pacific white sided dolphins are all present in Alaska (Hall 1981). The Marine Mammal Protection Act of 1972 protects all marine mammals. Any spill response activities, which could affect marine mammals, should be coordinated with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. NOTE: sea otters are the only marine mammal in the subarea under jurisdiction of the U.S. Fish and Wildlife Service.

Killer Whales, or Orca, prey upon warm-blooded vertebrates including marine mammals, sea birds, and many species of fish. Resident, transient and offshore killer whales all occur in Alaska. There is evidence to suggest killer whales are preying more on sea otters in certain parts of Alaska due to the decline of seals and sea lions in Alaskan waters (USFWS 2002).

Humpback Whales are the baleen whales most frequently seen swimming or feeding close to shore along the southern coast of Alaska. Distinguishing characteristics of humpback whales are their extremely long flippers, which may reach 25 to 30 percent of the length of the entire animal. The most recent abundance estimates indicate that nearly 1,000 humpback whales may be found in southeast Alaska north of Chatham Strait (Straley et al. 2002). Some humpback whales are present year-round in areas such as Sitka Sound and Lynn Canal. In Southeast Alaska, humpback whales show a high degree of site fidelity to feeding areas such as Frederick Sound, Chatham Strait, North Pass, Sitka Sound, Glacier Bay, and Icy Strait. Humpback whales in these regions feed primarily on herring, juvenile walleye Pollock, capelin, sandlance, and krill.

Gray Whales-They are alone among baleen whales in feeding predominantly on infaunal invertebrates. They apparently feed by lying on their sides and sucking up sediment from the sea floor. Gray whales have recovered slightly and their world population is now estimated at about 21,000. Two gray whales are harvested annually (range 0-6) in recent years by Alaskan Eskimos.

Harbor Seals are found year around in nearshore waters throughout Southeastern Alaska. Harbor seals tend to concentrate in estuaries and protected waters. Habitats used for haulouts include cobble and sand beaches, tidal mud flats, offshore rocks and reefs, and ice (frozen heads of bays, in fjords, etc.) when available. Harbor seals enter lakes and rivers on a seasonal basis.

Haulouts are used for pupping, molting, and resting, and may be used year-round; peak haulout use occurs during June through early October. Pupping occurs between late May and early July; most pups are born during the first three weeks of June. Births of harbor seal pups are not restricted to a few major sites (as is the case for many species of pinnipeds) but occur at many hauling sites. They haul out in thousands of locations in Alaska, and even if seals at all sites could be counted, the proportion of the total population hauled out at any given time is unknown. The total Alaska harbor seal population probably ranges between 200,000 and 300,000 animals.

Please see MESA maps 58-68 along with harbor seal haulout maps below to determine important concentration areas (ADF&G 2001).

Sea Otters are generally found in shallow (< 40m), nearshore areas where they feed on bottom-dwelling invertebrates. Sea otters depend on their fur to thermoregulate since they lack an insulating layer of fat (blubber). Although perhaps as few as 2,000 total animals existed in 1911 due to over harvest, most of the sea otter habitat in Alaska has now been repopulated (ADF&G 2003a). The principal exception is Southeast Alaska where numbers are increasing rapidly. This is in part due to reintroduction of otters in the 1960's.

The Steller Sea Lion in Southeastern Alaska is part of the population segment classified in 1997 as threatened under the Endangered Species Act. During May through August, territorial breeding behavior occurs on the rookeries. Pupping occurs from late May to early July; most pups are born during June. The National Marine Fisheries Service has designated both rookeries and haulouts as critical habitat for the endangered species.

Seasonal movements occur generally from exposed areas in summer to protected areas in winter. Steller sea lions can move over long distances. Please see map below for further Steller sea lion critical habitat delineations. Large concentrations of Steller sea lions haul out at Benjamin Island, Biali Rock, Biorka, Cape Addington, Cape Cross, Cape Ommaney, Coronation Island, Gran Point, Ledge Point, Lull Point, Sunset Island, and Timbered Island. Sea lion rookeries occur on Hazy Island, White Sisters, Biali Rock, Graves Rock, and also at Lowrie Island, Cape Horn Rocks, North Rock, and Sea Lion Rock in the Forrester Island complex. Rookeries can also be used as haulouts outside the breeding season.

Insert harbor seal map here 1 of 2

<http://www.asgdc.state.ak.us/maps/cplans/se/pic06334b.pdf>

Insert harbor seal map here 2 of 2

<http://www.asgdc.state.ak.us/maps/cplans/se/pic18467b.pdf>

(e) Terrestrial Mammals

Several species of terrestrial mammals are present. Brown and black bear, moose, Sitka black-tailed deer, wolves, mountain goats, river otter, mink and weasels are common in coastal areas. It should be noted that several of these mammals are transient through coastal areas (bear, deer, goats, wolves) on a daily basis, but their fleeting presence should not influence management decisions for oil spill response. These mammals may spend more time in coastal areas during winter months when forage becomes scarce at high elevations. River otter, mink and weasels are an exception to this general statement.

Sitka black-tailed deer is native to the coastal rain forests of Southeast Alaska. During summer, deer generally feed on herbaceous vegetation and the green leaves of shrubs and evergreen forbs and woody browse in the winter (ADF&G 2003c). During low snow years, evergreen forbs such as bunchberry and trailing bramble are preferred. During periods of deep snow, woody browse such as blueberry, yellow cedar and hemlock, and arboreal lichens are used (ADF&G 2003c). Also during heavy snow years, deer use the intertidal areas to feed on fucus and various macroalgae.

Roosevelt and Rocky Mountain Elk were successfully transplanted to Etolin Island near Petersburg in 1987 (ADF&G 2003c). Sightings of elk have been documented on several adjacent islands.

Moose occur in habitats throughout much of the Southeastern Alaskan region, ranging from aquatic and riparian floodplains to sub-alpine willow-dominated areas. Sedge meadows, ponds and lakes with extensive aquatic vegetation, riparian and subalpine willow stands, and forested areas provide important summer habitat for moose where they feed on sedges, equisetum, pond weeds, and grasses (ADF&G 2003c). Important winter habitat includes shrub-dominated alpine and riparian areas, and forested areas. During fall and winter, moose consume large quantities of willow, birch, and aspen twigs (ADF&G 2003c). Calving occurs in mid May and early June, frequently in isolated marshy lowlands after a gestation of about 230 days. Annual harvest of moose by residents and nonresidents is approximately 6,000-8,000 for the state of Alaska per year (ADF&G 2003c).

Brown Bears occur throughout Southeastern Alaska except on the islands south of Frederick Sound. Bear concentrations may be found along rivers when spawning salmon are present. Brown bears consume a wide variety of foods including: berries, grasses, sedges, horsetails, cow parsnip, fish, ground squirrels, carrion, and roots of many kinds of plants. Brown bears enter dens beginning in late October, with most bears denning by mid December. Bears emerge from their dens as early as mid March, depending on weather conditions. Brown bears visit tidal flats from mid-late April through late June to graze on the grass and sedge communities. Use of intertidal areas decreases during mid-summer, although individuals will visit to dig clams or scavenge beached carcasses. Once the salmon return to streams in August, bears concentrate along the streams near tidewater to feed. Brown bears will stay near salmon streams until the runs play out, sometimes into October (Crowley 2002). Harvest data in Unit 6 (ADF&G 2000a). Brown bear spring concentration areas include the Blacksand Spit near Situk, on Bear Island around Dry Bay, by the Chilkat and Lutak Inlet, Dry Strait, Stikine River, Pack Creek and the Stan Price State Wildlife Sanctuary, and Grant Creek. Brown Bear concentrations along fish streams include the Chilkat River, Stikine River, Situk River, Pack Creek, Unuk River, Klahini

River and dozens of smaller rivers and streams throughout their range (Please see MESA Maps 58-60 and 63-65 [ADF&G 2001]).

Black Bears -In Southeast Alaska, black bears occupy most islands with the exceptions of Admiralty, Baranof, Chichagof, and Kruzof (Crowley 2002). These are inhabited by brown bears. Both species occur on the southeastern mainland. The black bear is omnivorous, and consume freshly sprouted green vegetation, carrion, fresh kills of young moose and deer, and berries. Black bears have similar concentration areas as mentioned above for brown bears.

Furbearers- Beavers, coyotes, red foxes, lynx, marten, mink, muskrats, land otters and wolverines are all present in the Southeastern Alaska. Historical information on population status is mostly anecdotal. Sealing monitors harvests of beavers, lynx, land otters and wolverines. Lynx, wolverines, and coyotes are relatively scarce in the area (ADF&G files).

In the Southeastern Alaska area, beaver, mink, and river otter are common inhabitants of aquatic and riparian floodplain and wetland areas, including marshes, ponds, lakes, streams, and rivers. Mink are considered to be common to abundant throughout the subarea. They prey on a variety of animals and feed on anything they can capture and kill. They are adapted to capture aquatic and terrestrial prey including mammals, fish, birds, amphibians, crustaceans, and insects. Fish are their main food item. Diet of the river otters consist of fish, crustaceans, amphibians, insects, birds, and mammals.

Wolves and Foxes are found throughout Southeastern Alaska, including the major islands where deer would be adequate prey. Wolves are carnivores, and in most of mainland Alaska moose and/or caribou are their primary food, with Dall sheep being important in limited areas. In Southeast Alaska, Sitka black-tailed deer, mountain goats, beaver, and fish are the most important sources of food. During summer, small mammals including voles, snowshoe hares, beaver, and occasionally birds are supplements in the diet (ADF&G 2003c). Wolves and foxes select den sites where unfrozen, well-drained soils occur (e.g., dunes, river banks, and moraines). Wolves may initiate den construction in mid-April with pups being born from mid May through early June. Dens may be occupied until August. Red foxes have a reproductive pattern similar to that of wolves.

## References For Biological Resources

- Agler, Beverly A., Steven J. Kendall, and David B. Irons. 1998. Abundance and Distribution of Marbled and Kittlitz's Murrelets in Southcentral and Southeast Alaska. *The Condor* 100(2):254-265.
- Alaska Department of Fish and Game. 2003a. Endangered Species Web Site. [http://www.state.ak.us/local/akpages/FISH.GAME/wildlife/geninfo/game/es\\_list.htm](http://www.state.ak.us/local/akpages/FISH.GAME/wildlife/geninfo/game/es_list.htm) [website no longer at address – now available online at <http://www.wildlife.alaska.gov/index.cfm?adfg=endangered.main>]
- Alaska Department of Fish and Game. 2003b. Alaska Department of Fish and Game Home Page. <http://www.state.ak.us/adfg/adfghome.htm>.
- Alaska Department of Fish and Game. 2003c. Web Notebook Series. <http://www.state.ak.us/adfg/notebook/notehome.htm>. [website no longer at address – now available online at <http://www.adfg.state.ak.us/pubs/notebook/notehome.php>]
- Alaska Department of Fish and Game, Division of Sport Fisheries. 2003d. Fish Distribution Database.
- Alaska Department of Fish and Game, Habitat and Restoration Division. 2001. Oil Spill Contingency Planning: Most Environmentally Sensitive Areas (MESAs) Along the Coast of Alaska. Volume II. Prepared by the Alaska Department of Fish and Game, Habitat and restoration Division. Anchorage, AK.
- Alaska Department of Fish and Game. Hicks, Mary, Editor. 2000a. Federal Aid in Wildlife Restoration Annual Performance Report Survey-Inventory Activities: 1 July 1999-30 June 2000: Brown Bear. Pages 4-5
- Alaska Department of Fish and Game. June 1999a. Yakataga State Game Refuge Management Plan.
- Alaska Department of Fish and Game. March 1990. Mendenhall Wetlands State Game Refuge Management Plan.
- Armstrong, R. H. 1996. Alaska's Fish, A Guide to Selected Species.
- Carlson, H.R., R.E. Haight, R.E. and K.J. Krieger. 1982. *Species composition and relative abundance of demersal marine life in waters of Southeastern Alaska, 1969-81*. NWAFC Processed Report 82-16. 106 p.
- Crowley, Dave. 2002. Personal Communication with ADF&G Area Biologist concerning bears in Alaska.
- Griese, H. J. 1988. Unit 6 Furbearer Survey-Inventory Progress Report. Pages 31-44 in S. O. Morgan Editor. Annual Report of Survey-inventory Activities. Part XIV. Furbearers. Volume XVIII. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report W-22-6, Job 7.0. Juneau.
- Griese, H. J. 1990. Unit 6 Furbearer Survey-Inventory Progress Report. Pages 42-55 in S. O. Morgan Editor. Annual Report of Survey-inventory Activities. Part XIV. Furbearers. Volume XX. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report W-23-2, Study 7.0. Juneau.
- Johnson, S.W., A. Darcie Neff and Jouhn F. Thedingal. *An atlas fo the distribution and habitat of common fishes in hsallow nearshore waters of southeastern Alaska*. Unpublished.
- Lohr, Sameul C., Mason D. Bryant. 1999. Biological Characteristics and Population Status of Steelhead (*Oncorhynchus mykiss*) in Southeast Alaska. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station. General Technical Report, PNW-GTR-407.

McAllister, Dennis. March 1993. Alaska Department of Fish and Game. Personal Communication Regarding Steller Sea Lion Haulouts.

National Marine Fisheries Service. 2003a. Steller Sea Lion Critical Habitat and No-Entry Zones. <http://www.fakr.noaa.gov/protectedresources/stellers/habitat.htm>.

National Marine Fisheries Service. 2003b. Essential Fish Habitat Information. <http://www.fakr.noaa.gov/habitat/efh.htm>.

Straley, J.M., T.J. Quinn, and C.M. Gabriele. 2002. *Estimate of the abundance of humpback whales in southeastern Alaska 1994-2000*. Rept. To NMFS, NMML, Grant No. G00000756, SFOS02-223, Seattle Washington, October 2001. 22pp.

United States Geological Services. 2003a. Alaskan Bird List. <http://www.npwrc.usgs.gov/resource/othrdata/chekbird/r7/alaska.htm>.

United States Geological Services. 2003b. Juneau Bird List. <http://www.npwrc.usgs.gov/resource/othrdata/chekbird/r7/juneau.htm>

U.S. Fish and Wildlife Service National. 2003a. Endangered Species Web Site. <http://endangered.fws.gov/>.

US Fish and Wildlife Service. 2003b. Alaska Seabird Colony Data. Migratory Bird Management, Marine and Coastal Bird Management. Anchorage, AK.

US Fish and Wildlife Service. 2003c. Website Regarding Sea Otters.

U.S. Forest Service. 1995. Finding Birds in Juneau. U.S. Forest Service. Unpaginated. Jamiston, ND: Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/othrdata/chekbird/r7/juneau.htm> (Version 22May98).

## 2. Vegetation

Rare plant species are identified below, as documented by the Alaska Natural Heritage Program. The map on the following page identifies the general locations of these rare plants. For further information, contact the Alaska Natural Heritage Program botanist at 257-2785.

### RARE PLANTS KNOWN FROM THE SOUTHEAST ALASKA SUBAREA:

Global Rank	State Rank	Scientific Name	Common Name
G1	S1	<i>Botrychium sp 1</i>	
G1G2Q	S1	<i>Isoetes truncata</i>	Truncate quillwort
G2G3	S2	<i>Polystichum setigerum</i>	Alaska holly fern
G3	S1	<i>Cirsium edule</i>	Edible thistle
G3	S1	<i>Ligusticum calderi</i>	Calder's lovage
G3	S1S2	<i>Glyceria leptostachya</i>	Slim-head manna grass
G3	S2	<i>Phyllospadix serrulatus</i>	Serrulate surf-grass
G3	S2	<i>Poa laxiflora</i>	Loose-flowered bluegrass
G3	S2	<i>Senecio moresbiensis</i>	
G3	S2S3	<i>Phacelia mollis</i>	Coffee creek scorpion-weed
G3	S3	<i>Draba ruaxes</i>	Ranier whitlow-grass
G3	S3	<i>Romanzoffia unalaschensis</i>	Alaska mistmaiden
G3	S3	<i>Thlaspi arcticum</i>	Arctic pennycress
G3	S2	<i>Botrychium ascendens</i>	Upward-lobed moonwort
G3G4	S3	<i>Platanthera chorisiana</i>	Choriso bog-orchid
G4	S1	<i>Polystichum kruckebergii</i>	
G4	S1S2	<i>Phyllodoce empetriformis</i>	Pink mountain-heath
G4	S2	<i>Eleocharis kamtschatica</i>	Kamchatka spike-rush
G4	S2	<i>Galium kamtschaticum</i>	Boreal bedstraw
G4	S2	<i>Taxus brevifolia</i>	Pacific yew
G4	S2S3	<i>Malaxis paludosa</i>	Bog adder's-mouth
G4	S3	<i>Abies amabilis</i>	Pacific silver fir
G4	S3	<i>Asplenium viride</i>	
G4	S3S4	<i>Draba lacteal</i>	Milky whitlow-grass
G4	S4	<i>Euphrasia mollis</i>	Subalpine eyebright
G4	S1	<i>Hymenophyllum wrightii</i>	Wright's filmy fern
G4	S2S4	<i>Castilleja parviflora</i>	Small-flowered indian-paintbrush
G4G5	S1	<i>Cypripedium montanum</i>	Mountain lady's-slipper
G4G5	S1	<i>Scirpus subterminalis</i>	Water bulrush
G4G5	S1S2	<i>Isoetes occidentalis</i>	
G4G5	S2	<i>Lonicera involucrate</i>	Fly honeysuckle
G4G5	S4	<i>Cassiope lycopodioides</i>	Clubmoss bell-heather
G4Q	S3	<i>Pedicularis macrodonta</i>	Muskeg lousewort

Global Rank	State Rank	Scientific Name	Common Name
G4T2T3	S2S3	<i>Stellaria ruscifolia ssp aleutica</i>	
G5	S1	<i>Arnica mollis</i>	Hairy arnica
G5	S1	<i>Campanula scouleri</i>	Scouler's bell-flower
G5	S1	<i>Carex bebbii</i>	Bebb's sedge
G5	S1	<i>Carex interior</i>	Inland sedge
G5	S1	<i>Carex praegracilis</i>	Clustered field sedge
G5	S1	<i>Dulichium arundinaceum</i>	Three-way sedge
G5	S1	<i>Lactuca biennis</i>	Tall blue lettuce
G5	S1	<i>Listera convallarioides</i>	Broad-leaved twayblade
G5	S1	<i>Melica subulata</i>	Alaska onion grass
G5	S1	<i>Polygonum minimum</i>	Leafy dwarf Knotweed
G5	S1	<i>Rorippa curvisiliqua</i>	Curve-pod yellowcress
G5	S1	<i>Salix prolixa</i>	MacKenzie willow
G5	S1	<i>Stachys emersonii</i>	
G5	S1S2	<i>Carex athrostachya</i>	Joint-spike sedge
G5	S2	<i>Agrostis thurberiana</i>	Thurber bentgrass
G5	S2	<i>Mimulus lewisii</i>	Lewis monkeyflower
G5	S2	<i>Minuartia biflora</i>	Mountain stitchwort
G5	S2	<i>Mitella nuda</i>	Naked bishop's-cap
G5	S2	<i>Mitella trifida</i>	Pacific bishop's-cap
G5	S2	<i>Phacelia sericea</i>	Silky scorpion-weed
G5	S2	<i>Poa leptocoma</i>	Bog bluegrass
G5	S2	<i>Salix hookeriana</i>	Hooker willow
G5	S2	<i>Spiraea douglasii</i>	Douglas spirea
G5	S2	<i>Vicia Americana</i>	American purple vetch
G5	S2S3	<i>Draba incerta</i>	Yellowstone whitlow-grass
G5	S2S3	<i>Phacelia franklinii</i>	Franklin's phacelia
G5	S2S3	<i>Physocarpus capitatus</i>	Pacific ninebark
G5	S3	<i>Crassula aquatica</i>	Water pygmy-weed
G5	S3	<i>Cystopteris Montana</i>	Mountain bladder fern
G5	S3	<i>Lycopodium inundatum</i>	
G5	S3	<i>Lycopus uniflorus</i>	Northern bugleweed
G5	S3	<i>Sedum oreganum</i>	Oregon stonecrop
G5	S3	<i>Zannichellia palustris</i>	Horned pondweed
G5	S3S4	<i>Malaxis monophyllos</i>	White adder's-mouth
G5	S4	<i>Primula eximia</i>	
G5	S4	<i>Stellaria crassifolia</i>	Fleshy stitchwort
G5	S4	<i>Woodsia glabella</i>	Smooth woodsia
G5	S1	<i>Sedum divergens</i>	Spreading stonecrop
G5	S2	<i>Platanthera orbiculata</i>	Large roundleaf orchid
G5	S3	<i>Viola selkirkii</i>	Great-spurred violet
G5T2	S1	<i>Salix reticulata ssp glabellcarpa</i>	Smooth-fruited netleaf

Global Rank	State Rank	Scientific Name	Common Name
G5T2Q	S2	<i>Arnica lessingii ssp norbergii</i>	Norberg arnica
G5T2Q	S2	<i>Dodecatheon pulchellum ssp alaskanus</i>	Alaskan pretty shooting-star
G5T2T4	S2S4	<i>Gentianella propinqua ssp aleutica</i>	Aleutian four-parted gentian
G5T3Q	S3	<i>Carex lenticularis var dolia</i>	Goose-grass sedge
G5T4	S1S2	<i>Crataegus douglasii var douglasii</i>	
G5T5	S1	<i>Nymphaea odorata ssp odorata</i>	
G5T5	S1	<i>Poa douglasii ssp macrantha</i>	
G5T5	S1	<i>Salix planifolia ssp planifolia</i>	
G5T5	S1S2	<i>Geum aleppicum var strictum</i>	
G5T5	S2	<i>Betula papyrifera var commutata</i>	Western paper birch
G5T5	S2S3	<i>Cypripedium calceolus ssp parviflora</i>	Small yellow laddyslipper
G5T5	S3	<i>Glehnia littoralis ssp leiocarpa</i>	
G5T5Q	S2	<i>Glyceria striata ssp stricta</i>	Fowl manna-grass
G5T5Q	S2	<i>Symphoricarpos albus ssp laevigatus</i>	
GU	S2	<i>Platanthera gracilis</i>	Slender bog-orchid

### Species Ranks used by The Alaska Natural Heritage Program:

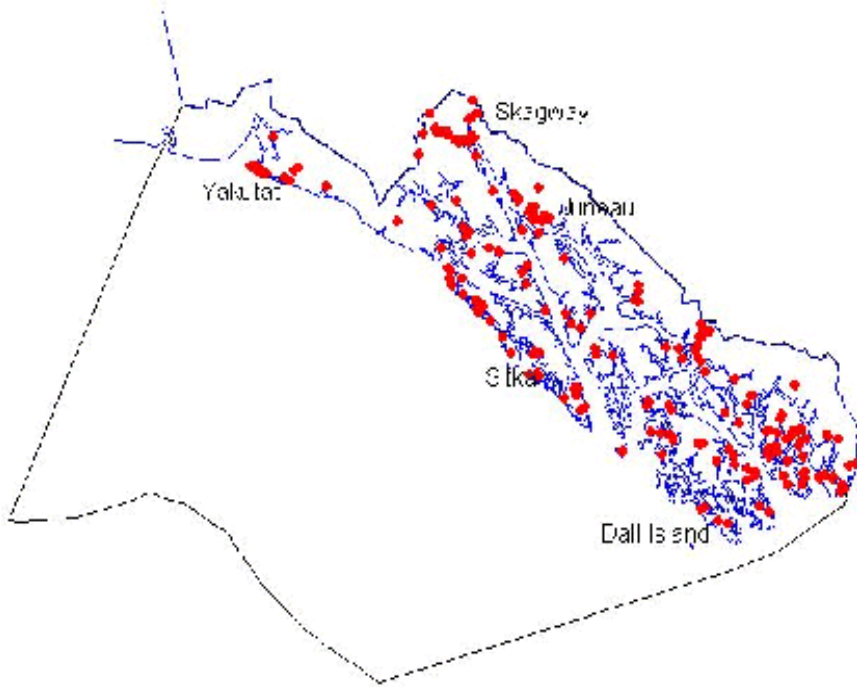
#### Species Global Rankings

- G1: Critically imperiled globally. (typically 5 or fewer occurrences)  
G2: Imperiled globally. (6-20 occurrences)  
G3: Rare or uncommon globally. (21-100 occurrences)  
G4: Apparently secure globally, but cause for long-term concern (usually more than 100 occurrences)  
G5: Demonstrably secure globally.  
G#GU: Rank of species uncertain, best described as a range between the between the two ranks.  
G#Q: Taxonomically questionable.  
G#T#: Global rank of species and global rank of the described variety or subspecies of the species.

#### Species State Rankings

- S1: Critically imperiled in state. (usually 5 or fewer occurrences)  
S2: Imperiled in state. (6-20 occurrences)  
S3: Rare or uncommon in state. (21-100 occurrences)  
S4: Apparently secure in state, but with cause for long-term (usually more than 100 occurrences)  
S5: Demonstrably secure in state.  
S#S#: State rank of species uncertain, best described as a range between the two ranks.

### Known Rare Plant Locations for the Southeast Alaska Subarea Contingency Plan



Source: Department of Natural Resources  
Map of Conservation Sensitive Areas  
Map of Conservation Sensitive Areas

### **3. Biologically Sensitive Areas**

The Alaska Department of Fish and Game began a project in 1996 to map some of the most environmentally sensitive areas (MESAs) for wildlife along Alaska's coast. This information is for contingency planning purposes and does not cover the complete coastline on sensitive areas that other organizations may identify. Maps entitled "Most Environmentally Sensitive Areas along the Coast of Alaska" were published by the Alaska Department of Fish & Game (1997), and are available in hard copy and digital format from their Anchorage office at 267-2338.

Each of these sensitive areas is plotted on a 1:250,000 scale U.S. Geological Survey quadrangle map. An index map of the MESAs in the subarea, a list of MESAs and their resource values, and a reduced version of each map follows. MESA's may be found on the internet at:

<http://www.asgdc.state.ak.us/maps/cplans/subareas.html>

Insert BIOLOGICAL HOTSPOTS MAP here

[http://www.asgdc.state.ak.us/maps/cplans/base/mesa\\_vol2.pdf](http://www.asgdc.state.ak.us/maps/cplans/base/mesa_vol2.pdf)

**Oil Spill Contingency Planning  
Most Environmentally Sensitive Areas  
("Biological Hotspots")  
along the Coast of the Southeast Alaska Subarea**

58. Situk <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa58.pdf>
- salmon concentrations
  - eulachon spawning
  - waterfowl and shorebird spring and fall staging
  - seabird colony (>3,300 birds)
  - harbor seal haulouts (>100 animals)
  - brown bear feeding concentrations
59. Dry Bay <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa59.pdf>
- salmon concentrations
  - eulachon spawning
  - waterfowl and shorebird spring and fall staging
  - seabird colonies (>1,600 birds)
  - harbor seal haulouts (>100 animals)
  - brown bear feeding concentrations
60. Chilkat River Flats <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa60.pdf>
- salmon concentrations
  - eulachon spawning
  - waterfowl and shorebird spring and fall staging
  - bald eagle feeding concentrations
61. Mendenhall Wetlands <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa61.pdf>
- salmon concentrations
  - eulachon spawning
  - waterfowl and shorebird spring and fall staging and winter concentrations
  - seabird colonies (>100 birds)
  - Mendenhall Wetlands State Game Refuge
62. St. Lazaria Island <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa62.pdf>
- seabird colony (>404,000 birds)
  - Alaska Maritime National Wildlife Refuge
63. Stikine River Flats <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa63.pdf>
- salmon concentrations
  - eulachon spawning
  - waterfowl and shorebird spring and fall staging
  - harbor seal haulouts (>100 animals)
  - brown/black bear feeding concentrations
64. Mouth of Pack Creek (Seymour Canal)  
<http://www.asgdc.state.ak.us/maps/cplans/se/ mesa64.pdf>
- salmon concentrations

- brown bear feeding concentrations
  - Stan Price State Wildlife Sanctuary
65. Burroughs Bay (east of Bradford Canal) <http://www.asgdc.state.ak.us/maps/cplans/se/mesa65.pdf>
- salmon concentrations
  - eulachon spawning
  - herring wintering concentrations
  - waterfowl and shorebird spring and fall staging
  - harbor seal haulouts
  - black/brown bear feeding concentrations
66. Hazy Islands (west of Coronation Island) <http://www.asgdc.state.ak.us/maps/cplans/se/mesa66.pdf>
- seabird colonies (3,600 birds)
  - sea lion haulout and rookery (808 pups)
  - Alaska Maritime National Wildlife Refuge
67. Coronation Island <http://www.asgdc.state.ak.us/maps/cplans/se/mesa67.pdf>
- seabird colonies (>1,300 birds)
  - sea lion haulout
  - sea otter concentrations
68. Forrester Island <http://www.asgdc.state.ak.us/maps/cplans/se/mesa68.pdf>
- seabird colonies (>1 million birds)
  - sea lion haulout and rookery (3,261 pups)
  - Alaska Maritime National Wildlife Refuge

<sup>1</sup> Area heavily weighted by highly significant commercial and/or subsistence fisheries.

Insert MESA map 1 of 11

Sitik <http://www.asgdc.state.ak.us/maps/cplans/se/mesa58.pdf>

Insert MESA map 2 of 11

Dry Bay <http://www.asgdc.state.ak.us/maps/cplans/se/mesa59.pdf>

Insert MESA map 3 of 11

Chilkat River Flats <http://www.asgdc.state.ak.us/maps/cplans/se/mesa60.pdf>

Insert MESA map 4 of 11

Mendenhall Wetlands <http://www.asgdc.state.ak.us/maps/cplans/se/ mesa61.pdf>

Insert MESA map 5 of 11

St. Lazaria Island <http://www.asgdc.state.ak.us/maps/cplans/se/mesa62.pdf>

Insert MESA map 6 of 11

Stikine River Flats <http://www.asgdc.state.ak.us/maps/cplans/se/mesa63.pdf>

Insert MESA map 7 of 11

Mouth of Pack Creek (Seymour Canal) <http://www.asgdc.state.ak.us/maps/cplans/se/mesa64.pdf>

Insert MESA map 8 of 11

Burroughs Bay (east of Bradford Canal) <http://www.asgdc.state.ak.us/maps/cplans/se/mesa65.pdf>

Insert MESA map 9 of 11

Hazy Islands (west of Coronation Island) <http://www.asgdc.state.ak.us/maps/cplans/se/mesa66.pdf>

Insert MESA map 10 of 11

Coronation Island <http://www.asgdc.state.ak.us/maps/cplans/se/mesa67.pdf>

Insert MESA map 11 of 11

Forrester Island <http://www.asgdc.state.ak.us/maps/cplans/se/mesa68.pdf>

## D. HUMAN USE RESOURCES

### 1. Fish Hatcheries and Associated Ocean Net Pens

There are currently 24 operating hatcheries in the Southeast Alaska Subarea. The species raised include trout and all five species of Pacific salmon. Hatcheries and their associated ocean net pen release sites are shown in the following tables and figures. Ocean net pens are located at:

Auke Bay  
Fritz Cove  
Gilbert Bay  
Etolin Island  
Shrimp Bay

The hatchery activities most vulnerable to spill injury include fry rearing and release at the hatcheries or associated ocean net pen sites, terminal harvests, and egg takes. However, since the timing of these activities varies by hatchery and species, it is difficult to generalize about what activity occurs, and when, although spring and summer tend to be the most critical times. Hatchery managers should be contacted for specific information. Contact numbers are listed in the following table.

For additional information on hatcheries and ocean net pens in the subarea contact:

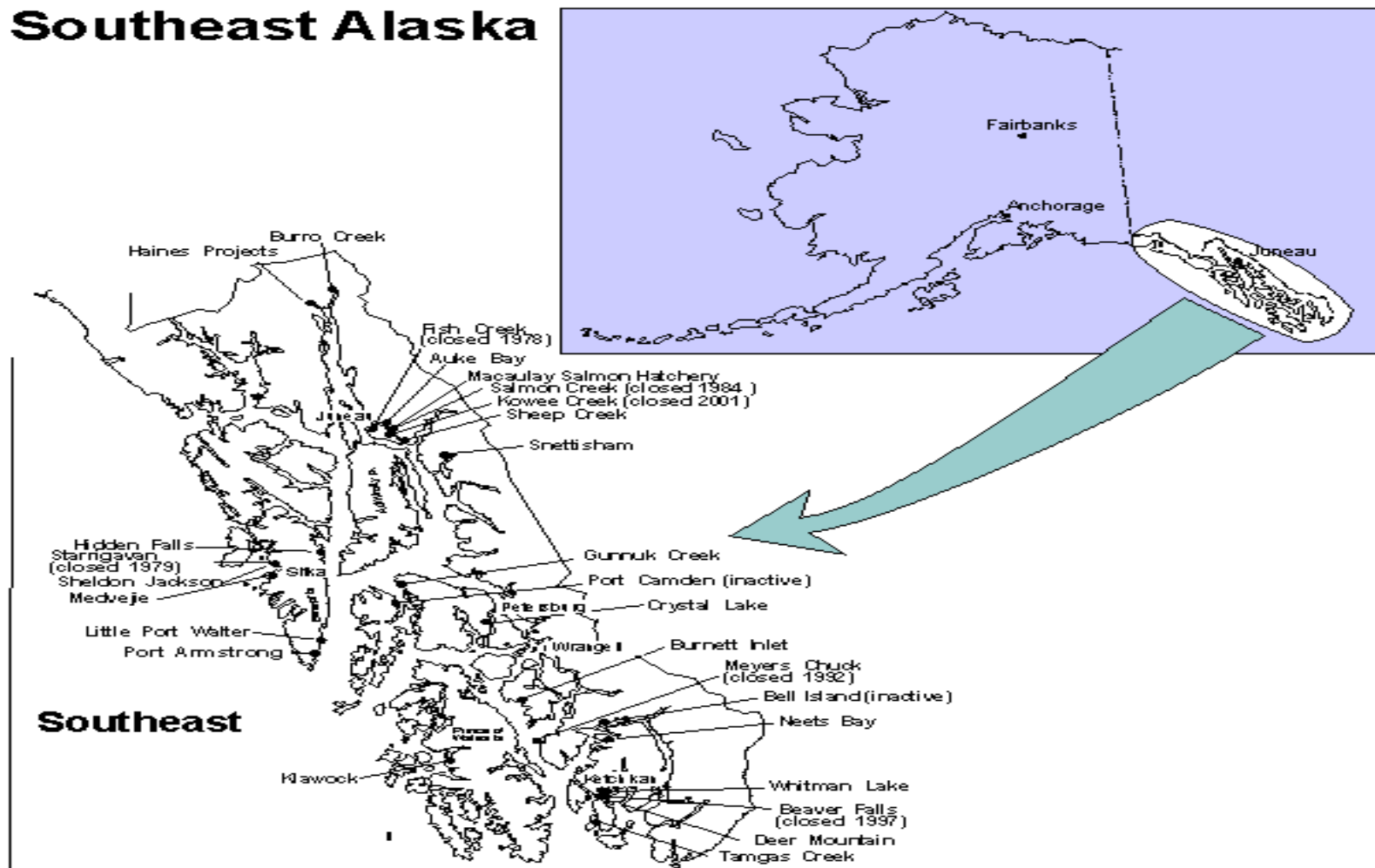
Alaska Department of Fish and Game  
Juneau  
465-6152

## Fish Hatcheries

<u>Operator, Hatchery, City, Phone</u>	<u>Species</u>
<b>Southern Southeast Regional Aquaculture Association:</b> Whitman Lake Hatchery Ketchikan (225-2635)	chum, coho, chinook and sockeye
Beaver Falls Hatchery Ketchikan (225-9605)	sockeye and coho
Neets Bay Hatchery Ketchikan (247-8790)	chum, coho and chinook
Crystal Lake Hatchery Petersburg 772-4772	chinook, coho and steelhead
Burnett Inlet Hatchery Wrangell (874-2250)	pink, chum, coho and chinook
<b>American Aquaculture Corp.:</b> Bell Island Hatchery (not operational) Ketchikan (214-363-2070)	chinook, coho, and steelhead trout
<b>Ketchikan Tribal Hatchery Corp.:</b> Deer Mountain Hatchery Ketchikan (225-6760)	chinook, coho, steelhead and rainbow trout
<b>Prince of Wales Hatchery Association:</b> Klawock River Hatchery Craig (755-2231)	coho, sockeye and steelhead
<b>Northern Southeast Regional Aquaculture Association:</b> Hidden Falls Hatchery Sitka (788-3215)	chum, coho and chinook
Medvejie Creek Hatchery Sitka (747-5863)	chum, coho, pink and chinook
Port Camden Hatchery (no longer operational) Kuiu Island (747-6850)	chum
Haines Hatchery Haines (766-3110)	chum and sockeye
<b>Sheldon Jackson College Aquaculture Program:</b> Sheldon Jackson Hatchery	pink, chum, coho,

Sitka (747-5209)	chinook and steelhead
<b>Douglas Island Pink and Chum, Inc.:</b> Snettisham Hatchery Douglas (586-3838, dial 11 at the tone)	sockeye
Gastineau Channel Hatchery Juneau (463-5113)	pink, chum, coho and chinook
Kowee Creek Hatchery Juneau (463-5113)	steelhead trout
Sheep Creek Hatchery Juneau (586-3663)	pink, chum and coho
<b>Kake Nonprofit Fisheries Corp.:</b> Gunnuk Creek Hatchery Kake (789-2964)	pink, chum and coho
<b>Burro Creek Farms:</b> Burro Creek Hatchery Skagway (983-2355)	pink, chum, coho and chinook
<b>Armstrong-Keta, Inc.:</b> Port Armstrong Hatchery Sitka (568-2228)	pink, chum, coho and chinook
<b>National Marine Fisheries Service and Alaska Department of Fish and Game:</b>	
Little Port Walter Research Station Sitka (Marine Radio WRY8219) Auke Creek Hatchery Juneau 586-3443	chinook and steelhead (pen-reared) cutthroat trout and sockeye salmon

# Locations of Hatcheries in Southeast Alaska



## 2. Aquaculture Sites

Several aquatic farms are currently operating in Southeast. Most are growing oysters, although there is also interest in blue mussels, scallops, and kelp. The number of farms may increase. The locations of currently permitted farms are indicated on the following map.

Aquatic farms are vulnerable to spill injury on a year-round basis since the organisms are continuously submerged in the water column or are being held intertidally. The timing of the harvest varies. For more information contact:

Aquaculture Coordinator  
Alaska Department of Fish and Game  
Juneau: 465-6150 Anchorage: 267-2279

Alaska Department of Environmental Conservation  
Anchorage: 269-7638

Alaska Department of Natural Resources  
Anchorage: 269-8546

Or see the internet at: <http://www.asgdc.state.ak.us/maps/cplans/se/se35aqua.pdf>

Insert aqua farm map here

<http://www.asgdc.state.ak.us/maps/cplans/se/se35aqua.pdf>

**Southeast Alaska Authorized Aquatic Farmsites**

(Alaska Department of Natural Resources)

<b>FILE NUMBER</b>	<b>CUSTOMER NAME BUSINESS NAME</b>	<b>ADDRESS PHONE</b>	<b>ACREAGE</b>	<b>SPECIES</b>	<b>MTRS* LAT/LONG</b>	<b>BAY/COVE</b>
105287	MUNHOVEN, DONALD	PO BOX 6335 KETCHIKAN AK 99901	2.78	OYSTERS	C067S083E15 560358- 1323317	UNNAMED BAY/MOSMAN ISLAND
105303	NICHOLSON, DON CANOE LAGOON OYSTER COMPANY	PO BOX 18062 COFFMAN COVE AK 99918  907-329-2253	6.4	OYSTERS	C066S081E28 560750- 1325329	CANOE LAGOON/FOOLS BAY, CLAM GULCH, WEST PASS
105308	PUGH, JR., JOHN KAHLI COVE SHELLFISH, LLC	BOX NKI #357 KETCHIKAN AK 99950  907-789-5866	4.22	OYSTERS	C068S079E31 559252- 1332590	CANOE LAGOON AND FOOLS BAY
105796	WILD, JAMES W. WILD'S ALASKAN SEAFARM	PO BOX 109 ELFIN COVE AK 99825  907-239-2222	1.86	OYSTERS	C043S056E29 580701- 1361759	PORT ALTHORP
105889	HARPER, PETE SEA OTTER SOUND SEAFOODS, INC.	PO BOX 347 NAUKATI AK 99950  907-789-2139	4.45	OYSTERS	C069S079E09 532473- 1331946	UNNAMED BAY/CAP- TUXEKAN ISLANDS
105899	LYLE, ALEXANDER EMILY ISLAND OYSTERS	BOX 1775 PETERSBURG AK 99833  907-772-4697	2.53	OYSTERS	C061S079E07 563543- 1330807	LITTLE DUNCAN BAY
106146	MOTTET, MADELON SOUTHEAST ALASKA BIORESEARCH	704 SAWMILL CREEK SITKA AK 99835  907-747-3862	6	OYSTERS	C056S063E02 570240- 1352200	WHITING HARBOR
106149	PAINTER, RODGER TENASS PASS SHELLFISH COMPANY	PO BOX 20704 JUNEAU AK 99802  907-463-3600	6.9	OYSTERS	C067S078E34 560231- 1331756	EL CAP PASS, KOSCIUSKO BAY, NORTH ISLAND
106252	HENDERSON, TOM PEARL OF ALASKA	PO BOX 505 KAKE AK 99830  907-723-2469	13.8	OYSTERS	C058S074E34 567963- 1337448	STEDMAN COVE
106258	BELK, DORIS J TOKEEN BAY SEAFOODS	PO BOX 358 CRAIG AK 99921  9078742687X2355	3.79	OYSTERS	C068S078E07 555911- 1332445	UNNAMED BAY/MARBLE ISLAND
106571	LACROIX, STEPHAN SEA FARMS ALASKA/COHO COVE AQUAFARM	PO BOX 5686 KETCHIKAN AK 99901	6.48	GEODUCK	C 076S 092E 24 552721- 1313680	COHO COVE
106572	ZAUGG, GARY PAC ALASKA/SOUTH	519 PITTINGER ST KETCHIKAN AK 99901	7.5	GEODUCK	C 077S 095E 27 551662- 1310840	SOUTH SYKES

FILE NUMBER	CUSTOMER NAME BUSINESS NAME	ADDRESS PHONE	ACREAGE	SPECIES	MTRS* LAT/LONG	BAY/COVE
	SYKES AQUAFARM					
106574	PAINTER, RODGER  TENASS PASS SHELLFISH CO/EL CAPITAN PASSAGE AQUAFARM	PO BOX 20704 JUNEAU AK 99802  907-463-3600	4.06	LITTLENECK CLAMS	C067S078E35 560122- 1332986	EL CAP PASS, LONGLINE, JINHI BAY
106575	MILLER, GRANT  WHITING HARBOR AQUAFARM	PO BOX 6097 SITKA AK 99835	6.6	OYSTERS	C056S063E03 570459- 1353719	WHITING HARBOR
106576	MORIN, KURTIS  ALASKA SHELLFISH AQUACULTURE PROJECT/APE PT AQUAFA	PO BOX 619 WARD COVE AK 99928	4.8	GEODUCK	C076S094E26 552412- 1310947	N OF APE PT.
106577	MORIN, KURTIS  ALASKA SHELLFISH AQUACULTURE PROJECT/PT ALAVA	PO BOX 619 WARD COVE AK 99928	6.45	GEODUCK	C 077S 095E 07 552004- 1311660	PORT ALAVA
106583	KLINKERT, GEORGE  SWEETWATER EAFODDS/SHAKAN BAY AQUAFARM & NURSERY	BOX 75WWP WHALE PASS AK 99950  907-487-2592	1.66	LITTLENECK CLAMS	C065S077E32 561825- 1335403	SHAKAN BAY
106584	MUNHOVEN, DON  ROCKY BAY OYSTERS/MOSEMAN INLET AQUAFARM	PO BOX 6335 KETCHIKAN AK 9990907-225-5328	7.53	OYSTERS	C067S083E03 560512- 1323326	MOSMAN INLET
106585	NEMECEK, KAREN  INIAN ISLAND AQUAFARM	PO BOX 64 ELFIN COVE AK 99825	2	OYSTERS	C041S055E36 582652- 1363290	INIAN ISLAND
106834	MANNING, THOMAS  KRESTOF CLAM COMPANY	622 HEMLOCK WAY JUNEAU AK 99801  907-463-3431	1	GEODUCK	C054S062E03 572106- 1355426	KRESTOF SOUND
106835	MANNING, THOMAS  KRESTOF CLAM COMPANY	622 HEMLOCK WAY JUNEAU AK 99801  907-463-3431	1	GEODUCK	C037S063E25 586360- 1349478	BRIDGET COVE
106836	ROULSTON, SUSAN	BOX 53 PT BAKER AK 99927  907-559-2222	1	LITTLENECK CLAMS	C064SR75E26 562854- 1336554	LABOUCHERE BAY
106843	PUGH, JR., JOHN  KAHLI COVE SHELLFISH LLC	BOX NKI #357 KETCHIKAN AK 99950  907-321-0844	2	LITTLENECK CLAMS	C068S078E36 559283- 1332525	KAHLI COVE

<b>FILE NUMBER</b>	<b>CUSTOMER NAME BUSINESS NAME</b>	<b>ADDRESS PHONE</b>	<b>ACREAGE</b>	<b>SPECIES</b>	<b>MTRS* LAT/LONG</b>	<b>BAY/COVE</b>
106844	BAKKER, CORNELIUS	PO BOX 282 OLYMPIA WA 98507 360-791-2833	8.6	GEODUCK	C078S095E14 551004- 1310555	SLATE ISLAND
106845	BAKKER, CORNELIUS	PO BOX 282 OLYMPIA WA 98507 360-866-7159	1	GEODUCK	C075S089E34 553284- 1318637	GRAVINA ISLAND
106848	ZAUGG, GARY PAC ALASKA	519 PITTENGER ST KETCHIKAN AK 99901 907-225-5566	5.1	GEODUCK	C075S089E27 553319- 1318635	GRAVINA ISLAND
106850	LACROIX, STEPHEN SEA FARMS ALASKA	PO BOX 5686 KETCHIKAN AK 99901	5.4	GEODUCK	C 075S 089E 34 553253- 1318658	GRAVINA ISLAND
106991	WYATT, ERIC  BLUE STARR ALASKAN OYSTERS	PO BOX NKI #441 KETCHIKAN AK 99950  907-594-6334	0.95	OYSTERS	C068S078E05 560019- 1333797	TOKEEN BAY
106994	KING, ART  NAUKAT WEST HOMEOWNERS ASSOC.	PO BOX NKI #1 KETCHIKAN AK 99950 907-629-4266	0.08	FLUPSY	C069S080E19 558695- 1332160	TUXEKAN NARROWS
107001	LACROIX, STEPHEN SEA FARMS ALASKA	PO BOX 5686 KETCHIKAN AK 99901 907-247-5687	3.88	GEODUCK	C077S094E14 551936- 1312150	PT ALAVA #1
107002	MORIN, KURT ALASKA SHELLFISH AQUACULTURE PROJECT	PO BOX 619 WARD COVE AK 99928 907-247-4865	3.5	GEODUCK	C076S092E23 552634- 1313916	COHO COVE
107060	WILKINSON, LAWRENCE  KAGUK GEMS	BOX 19192 THORNE BAY AK 99919 907-629-4305	1	OYSTERS	C071S079E03 554421- 1331713	KAGUK COVE
107075	LACROIX, STEPHEN SEA FARMS LLC	PO BOX 5686 KETCHIKAN AK 99901 907-247-5687	4.71	GEODUCK	C077S094E14 551957- 1312165	PT ALAVA #2
107077	LACROIX, STEPHEN SEA FARMS LLC	PO BOX 5686 KETCHIKAN AK 99901 907-247-5687	4.93	GEODUCK	C077S095E34 551527- 1310812	BLACK ISLAND
107126	REDFIELD, JAMES  ETOLIN	4306 FILLMORE ST SANTA CLARA CA 95054	19	GEODUCK	C067S083E11 560747- 1325177	ETOLIN ISLAND

<b>FILE NUMBER</b>	<b>CUSTOMER NAME BUSINESS NAME</b>	<b>ADDRESS PHONE</b>	<b>ACREAGE</b>	<b>SPECIES</b>	<b>MTRS* LAT/LONG</b>	<b>BAY/COVE</b>
	ENTERPRISES LLC	408-567-8085				
	<b>TOTAL FILES:</b>	35		*meridian, township, range, section		

Insert aquatic farm map Dall Island and Long Island here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEDallLongIslands.pdf>

Insert aqua farm map of Blashke Islands

<http://www.asgdc.state.ak.us/maps/cplans/se/SEblashkeislands.pdf>

Insert aqua farm map of Cap Island and Jinhi Bay here

Cap Island

[http://www.asgdc.state.ak.us/maps/cplans/se/aquatic\\_farms/CapIsland.pdf](http://www.asgdc.state.ak.us/maps/cplans/se/aquatic_farms/CapIsland.pdf)

Jinhi Bay

[http://www.asgdc.state.ak.us/maps/cplans/se/aquatic\\_farms/JinhiBayPainter.pdf](http://www.asgdc.state.ak.us/maps/cplans/se/aquatic_farms/JinhiBayPainter.pdf)

Insert aqua farm map of Inian Islands here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEinianislands.pdf>

Insert aqua farm map of Little Duncan Bay

<http://www.asgdc.state.ak.us/maps/cplans/se/SElittleduncan.pdf>

Insert aqua farm map of Marble Island here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEmarbleisland.pdf>

Insert aqua farm map of Mosman Island here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEmosmanisland.pdf>

Insert aqua farm map of Port Althorp here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEportalthorp.pdf>

Insert aqua farm map of Sitka here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEsitka.pdf>

Insert aqua farm map of South Tenass and Kahli Cove

<http://www.asgdc.state.ak.us/maps/cplans/se/SEsouthtenasskahlicove.pdf>

Insert aqua farm map of Sunny Cove here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEsunnycove1.pdf>

Insert aqua farm map of Tenass Pass here

<http://www.asgdc.state.ak.us/maps/cplans/se/SEtenasspass.pdf>